Cal/EPA
California Environmental Protection Agency

Air Resources Board
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June 27, 1997

Manufacturers' Advisory Correspondence MAC #97-03

TO: ALL PASSENGER CAR MANUFACTURERS
ALL LIGHT-DUTY MANUFACTURERS
ALL MEDIUM-DUTY MANUFACTURERS
ALL OTHER INTERESTED PARTIES

Subject: Required format for submitting manufacturer quality audit quarterly assembly-line reports electronically and in hard copy.

Section C.7 of the California Assembly-Line Test Procedures for 1998 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles adopted June 24, 1996, requires manufacturers to submit their quarterly quality audit reports electronically and in hard copy in a format specified by the Air Resources Board (ARB). The attached Manufacturers Advisory Correspondence (MAC) transmits the ARB specified format and policy for manufacturers to use preparing their quarterly quality audit reports.

If you have questions regarding this matter, please contact Ms. Maggie Wilkinson, Manager, New Vehicle Audit Section at (626) 575-7040 or Ms. Veronica Longhi, Staff Engineer, at (626) 575-6642.

Sincerely,

/S/

R. B. Summerfield, Chief
Mobile Source Operations Division

Attachments

STATE OF CALIFORNIA
AIR RESOURCES BOARD

Manufacturer's Advisory Correspondence # 97-03

Subject: Required format for submitting manufacturer quality audit (QA) quarterly assembly-line reports electronically and in hard copy.

Applicability: Manufacturers of 1998 and later model-year passenger cars, light-duty trucks and medium-duty vehicles certified for sale in California.

References: Section 43210, Health and Safety Code (H&SC)

Section 2062, Title 13, California Code of Regulations (CCR), and the incorporated California Assembly-Line Test Procedures for 1998 and Subsequent Model-Year Passenger Cars, Light Duty Trucks and Medium-Duty Vehicles, adopted June 24, 1996 (ALTP).

Section 1960.1, Title 13, CCR and the incorporated California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles, last amended June 24, 1996.

Section 1976, Title 13, CCR and the incorporated California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Motor Vehicles, last amended April 24, 1996.

Background: In March 1994, in response to several manufacturers' inquiries and in an effort to expedite the reporting and processing of QA test data, the Air Resources Board (ARB) issued Mail-Out #94-14 which provided the format for the electronic submission of manufacturer quarterly QA reports. This mail-out established guidelines for manufacturers to develop a computerized reporting procedure and clarified the assembly-line reporting requirements for use in submitting QA test results.

In November 1995, the ARB distributed a

guidance document identifying the information to be submitted in hard copy with a quarterly assembly-line QA report provided in electronic format. Included with this guidance was a list of additional information required by the ALTP to be included in hard copy and a recommended format for consolidating the electronic data into easy-to-read tables to be submitted in hard copy as a part of the quarterly report.

In October 1996, Mail-Out #96-36 was distributed providing manufacturers with an update to the electronic data format for the inclusion of QA audit canister-loading information for engine families certified to running loss and useful life evaporative standards. This mail-out provided guidance on how to prepare a canister loading factor test plan and identified fields in the Mail-Out #94-14 electronic format for the incorporation of the canister-loading option information for each enhanced-evap certified engine family. These additions to the electronic format have been incorporated into the format provided in Attachment A of this MAC.

Discussion: All passenger car, light-duty truck and medium-duty vehicle manufacturers subject to QA requirements must submit their quarterly assembly-line reports electronically in a format specified by the ARB beginning with the 1998 model year. Manufacturers' use of this standardized electronic format will expedite the ARB's ability to evaluate these reports and is expected to translate into reduced fee reimbursement charges for manufacturers.

In addition to the electronic data submittal, the quarterly reports must be submitted in hard copy in an ARB-specified format along with the other hard copy information that is required quarterly by the assembly-line regulations.

Policy: The ARB-specified electronic format for use in submitting quarterly QA test results required by the ALTP, Section C.7.(j) is provided in Attachment A. The format is essentially the same as the electronic format identified in Mail-Out #94-14 with a few additions to accommodate flexible- and dual-fuel engine

families along with modifications to incorporate the canister-loading information defined in Mail-Out #96-36. Minor additions and changes have also been made to the range or domain of specific fields to reflect current certification and testing requirements.

This standardized electronic format must be followed precisely. All fields must be included in a manufacturer's submittal and any field that does not contain information is to remain blank. The regulatory basis for requiring the reporting of information is listed in Attachment A in the column labeled "Reference."

To meet the requirement of the ALTP C.7.(i) regarding "AB965" federally-certified light-duty vehicles and emission offsetting, manufacturers are to report federally-certified engine families in a separate section of the report. For flexible-, dual- and bi-fuel families, manufacturers must report separately for each fuel using the same engine family name.

Modifications have been made to the quarterly Engine Family Data and the Individual Data Files to include test fuel information in fields that are no longer needed. The TESTFUEL field used in the Engine Family Information File has been added to both of these quarterly files to designate the fuel on which the engine family or vehicle is being evaluated. In addition, a field (QAFUEL) has been added to the Engine Family Data Per Quarter File for reporting the fuel actually used for QA testing when it is different than the fuel used to evaluate the performance of an engine family. Changes have also been made to these two files to remove the fields for reporting total hydrocarbon emission measurements which are no longer used now that Tier 0 emission standards have been eliminated.

The ALTP requires that a hard copy of the electronic information be submitted in a format specified by the ARB. In addition, each manufacturer must continue to provide a signed statement that the inspection/functional testing has been performed on all production vehicles

during the quarter, and information on all pretest repairs performed on QA test vehicles must be submitted. Flexibility exists regarding what software a manufacturer uses to prepare the hard copy summary, however, the ARB expects manufacturers to provide the information from the electronic data files listed in Appendix B. Manufacturers that have problems providing certain information will be considered on a case-by-case basis. A suggested format for consolidating the electronic information into easy-to-read tables for printing the hard copy report is provided in Attachment C.

For those manufacturers that have Microsoft Access 2.0, the format for the tables in Attachment C are available in a Microsoft Access 2.0 database that can be used to generate the hard copy portion of the QA quarterly report. To request a copy of the disk, please contact Ms. Veronica Longhi, New Vehicle Audit Section at (626) 575-6642.

Attachments

Appendix A

Electronic Format
Quality-Audit (QA) Database Description

The QA database is a relational database consisting of the following:

1) **Engine Family Information File**
   This file consists of certification information for an individual engine family. It differs from the Engine Family Data Per Quarter File in that it does not change each quarter, and can be submitted once when reporting the first quarter of production of the engine family. If any changes in certification information occur during production of the engine family, a revised Engine Family Information File must be submitted with the next quarterly report. For flexible-, dual- or bi-fuel engine families, a separate engine family information file must be submitted for each fuel. (See pp. 3-4 of this appendix for the database structure of this file)

2) **Engine Family Data Quarter File**
   This file consists of engine family/engine family subgroup records where each record contains the statistical summary (example: mean and standard deviation) of QA test results for that engine family/engine family subgroup in the stated quarter. Those engine families with 2- and 4-wheel drive subgroups and all flexible-, dual- or bi-fuel families must have two files each quarter. (See pp. 5-6 of this appendix for the database structure of this file)

3) **Individual Data Per Quarter File**
   Consists of individual vehicle records for the stated quarter where each record contains information about all QA vehicles tested and the emission results for all tests. (See pp. 7-8 of this appendix for the database structure of this file)

Identification of Each Field in the Record

Each field in the record is identified by:

Sequence - Order of the data in the record
Data Name - Name of the data field
Type - Identifies what type of data
C = Characters (i.e. Alpha-numerics)
N = Numeric

D = Date

Length - Specifies the number or character for each field. For numerics, specifies the number of digits before the decimal and after the decimal.

Range or Domain - Lists the possible inputs for this data or shows the format to input the data.

Description - Description to help identify the data.

Reference - Reference to the California Assembly-Line Test Procedures for 1998 and Subsequent Model-Year PC, LDT, and MDV adopted June 24, 1996.

Appendix A

Guidance for Electronic Submittal of QA Data Files

Each file should be named in the following way: YYMMMMTQ.XXX

YY = Model Year (example: 98, 99, 00, etc.)
MMMM = Manufacturer code (see Codes for Manufacturers p. 9)
T = F for Engine family information file
S for Engine family data per quarter file
V for Individual data per quarter file
Q = quarter number (ex: 1 = Jan-Mar'97 for a '98 model year)
XXX = file extension
WK? for Lotus file
XLS for Excel file
WB? for Quattro Pro file
DBF for FoxPro file
DB? for Paradox file
TXT for comma delimited ASCII Text file

Presently, we are able to import all the above types of files. Please contact us if you have a file format not listed above.

The first row of each file should contain the field headings using the given Data Names. The data for each record are entered in the rows below the corresponding field heading (ie. columnar report format). All characters should be entered in uppercase.

All the files contain the fields MFR, ENG_FAM, VEHCLASS, CODETYPE, STANDARD, OPTS, DRIVE and TESTFUEL. These fields are necessary to distinguish between engine family subgroups such as 2- and 4-wheel drive vehicles, and engine families that are flexible-, dual- or bi-fueled. These subgroups and multiple fueled families are required to be reported and evaluated separately.

Repairs made on a vehicle reported in the Individual Data File are to be reported in the same record as the emissions test results corresponding to those repairs. For example, if a vehicle was not testable (ie. TST_STAT is NT), the reasons why it was not testable should be entered in the NOTES field of that record. Any repairs needed to make the vehicle testable should be reported in another record along with the corresponding emissions test results for that vehicle.

The Range or Domain of some fields in the database are listed as "Mfr. designated". If codes are used for those fields, please submit a code description table defining the codes or a format description so that the code can be deciphered. Not all fields are expected to apply for an engine family or vehicle. Those fields that do not apply should be left blank (no spaces please).

The QA database was designed to be compatible with ARB's certification database as well as the ARB consolidated database. Certain fields and input formats are essential in linking files together. If you encounter any problems or questions about the database structure/format, please contact Ms. Veronica Longhi at (626) 575-6642.

Sequence	Data Name	Type	Length	Range or Domain	Description	Reference*
1	EO	**C**	**11**	**example: A -12-345**	**Executive Order number. 3 types: A series = regular EO P series = 49 State / Fed emissions N series = special 100**	
2	MFR	**C**	**4**	**examples: GM, NISS, BENZ See Codes for Manufacturers (p. 10)**	**Name of the manufacturer.**	**C.7**
3	ENG_FAM	**C**	**12**	**example: WXMXV3.02EK See EPA designation**	**12-digit name for engine family (same as EPA).**	**C.7.(a)**
4	VEHCLASS	**C**	**2**	**PC = Passenger Car T1 = LDT (0 - 3750 lbs.) T2 = LDT (3751 - 5750 lbs.) M1 = MDV (0 - 3750 lbs.) M2 = MDV (3751 - 5750 lbs.) M3 = MDV (5751 - 8500 lbs.)**	**Types of Light Duty Vehicle**	**C.7.(e)(3), (i)**
5	CODETYPE	**C**	**3**	**CA = California certified 49S = 49-state certified 50S = 50-state certified**	**Identifies whether this engine family is a CA, 49-state or 50-state engine family.**	**C.7.(e)(3), (i)**
6	STANDARD	C	5	TIER1 = current new standards TLEV = Transition low emission vehicle LEV = Low emission vehicle ULEV = Ultra low emission vehicle SULEV = Super low emission vehicle ZEV = Zero emission vehicle 965T1 = AB965 Tier1 standards	Standard level this engine family is certified to.	C.7.(a)
7	**OPTS**	**C**	**1**	**1 = option (i) load canister on-board 2 = option (ii) load slave canister 3 = option (iii) canister loading factor (CLF) 4 = option (iv) CLF with slave canister D= certified to 100K optional diesel standards**	**Identify canister loading option for gasoline vehicles, or if diesel family, certified to 100K optional diesel standards.**	**C.7.(e)(3) C.2. (c)**
8	DRIVE	C	2	2F = 2 wheel drive, front 2R = 2 wheel drive, rear 4F = 4 wheel drive, Full-time 4P = 4 wheel drive, Part-time	Drive type	C.7.(g)
9	**CERTFUEL**	**C**	**3**	**IND = Indolene Clear PH2 = Phase II gasoline FFM = Flex fuel/Meth CNG = Compressed Natural Gas LPG = Liquid Petroleum Gas FFE = Flex fuel/ethanol DFC = Dual fuel/CNG DFL = Dual fuel/LPG Diesel: N13 = 13 CCR 2282 N94 = 40 CFR 86.113-94**	**Fuel type this engine family is certified to use, including flexable fuel and dual or bi-fuel confriguration.**	**C.5.(e), (f)**
10	**TESTFUEL**	**C**	**3**	**IND = Indolene Clear PH2 = Phase II gasoline M85 = 85% Methanol CNG = Compressed Natural Gas LPG = Liquid Petroleum Gas E85 = 85% Ethanol Diesel: N13 = 13 CCR 2282 N94 = 40 CFR 86.113-94**	**Fuel type used for evaluating engine family.**	**C.5.(e), (f)**
11	**MILEAGE**	**N**	**4**	**example: 40 (miles) 0 to 9999**	**Miles accumulated on the average for this engine family**	**C.2.(b)**
12	**HCDF_50**	**N**	**1.3**	**examples: 0.25 (additive DF) 1.39 (mult. DF) 0.000 to 9.999**	**50K HC Deterioration factor (DF). (note: HC in this case refers to THC, NMHC, NMOG, OMHCE, or OMNMHCE)**	**C.5.(a), (b), (c) C.7.(c)**
13	**HCDF_100**	**N**	**1.3**	**0.000 to 9.999**	**100K HC Deterioration factor. (note: HC in this case refers to THC, NMHC, NMOG, OMHCE, or OMNMHCE)**	**C.5.(a), (b), (c) C.7.(c)**
14	**NMOG5FFV**	**N**	**1.3**	**0.000 to 9.999**	**50K NMOG Deterioration factor for flex-fuel vehicles -- M0 to M85 methanol fueled engines.**	**C.5.(e) C.7.(c)**
15	**NMOG1FFV**	**N**	**1.3**	**0.000 to 9.999**	**100K NMOG deterioration factor for flexible-fuel vehicles.**	**C.5.(e) C.7.(c)**
16	**NMOGRAF5**	**N**	**1.3**	**0.000 to 9.999**	**NMOG reactivity adjustment factor (RAF) at 50K.**	**C.5.(d) C.7.(c)**
17	**NMOGRAF1**	**N**	**1.3**	**0.000 to 9.999**	**NMOG reactivity adjustment factor (RAF) at 100K -- only this value need to be reported for engine family specific RAF.**	**C.5.(d) C.7.(c)**
18	**OZON_DF5**	**N**	**1.3**	**0.000 to 9.999**	**50K Ozone deterioration factor.**	**C.5.(d) C.7.(c), (e)**
19	**OZON_DF1**	**N**	**1.3**	**0.000 to 9.999**	**100K Ozone deterioration factor -- only this value need to be reported by MFR.**	**C.5.(d) C.7.(c), (e)**

20	NMOG_RAT	N	1.3	0.000 to 9.999	NMOG to NMHC ratio established during certification testing to be multiplied with NMHC exhaust emissions to determine the equivalent NMOG exhaust emission value. M85 or E85 NMOG to gasoline NMHC ratio flexible fuel vehicles.	C.5.(d), (e) C.7.(c)
21	CODF_50K	N	1.3	example: 1.33 (add. DF) 1.082 (mult. DF) 0.000 to 9.999	50K CO Deterioration factor.	C.7.(c)
22	CODF_100	N	1.3	0.000 to 9.999	100K CO Deterioration factor.	C.7.(c)
23	NOXDF50K	N	1.3	example: 0.11 (add. DF) 1.736 (mult. DF) 0.000 to 9.999	50K NOX Deterioration factor.	C.7.(c)
24	NOXDF100	N	1.3	0.000 to 9.999	100K NOX Deterioration factor.	C.7.(c)
25	HCHODF50	N	1.4	0.0000 to 9.9999	50K HCHO Deterioration factor.	C.6. C.7.(c)
26	HCHODF10	N	1.4	0.0000 to 9.9999	100K HCHO Deterioration factor.	C.6. C.7.(c)
27	HCHO_RAT	N	1.3	0.000 to 9.999	HCHO to NMHC ratio est. during cert. testing to be multiplied with NMHC exhaust emissions of quality audit (QA) vehicle to determine equivalent HCHO exhaust emission value for the QA vehicle.	C.6. C.7.(c)
28	PARTDF50	N	1.3	0.000 to 9.999	50K Particulate Matter deterioration factor. (for diesel only)	C.7.(c)
29	PARTDF10	N	1.3	0.000 to 9.999	100K Particulate Matter deterioration factor. (for diesel only)	C.7.(c)
30	MASDF50	N	1.4	0.0000 to 9.9999	Mass deterioration factor at 50K for ozone forming potential --96 + MY Tier 1 vehicles.	C.7.(c)
31	MASDF100	N	1.4	0.0000 to 9.9999	Mass deterioration factor at 100K ---Tier 1 vehicles in 96 + MY	C.7.(c)
32	HC_D	N	1.4	0.0000 to 9.9999	Average of the hydrocarbon (THC, NMHC, NMOG) emissions difference between a loaded and unloaded canister; Additive factor applied to hydrocarbon test results to account for unloaded canister.	C.2.(c)
33	OMHCE_D	N	1.4	0.0000 to 9.9999	Average of the OMHCE emissions difference between a loaded and unloaded canister; Additive factor applied to OMHCE test results to account for unloaded canister.	C.2.(c)
34	CO_D	N	1.4	0.0000 to 9.9999	Average of the CO emissions difference between a loaded and unloaded canister; Additive factor applied to CO test results to account for unloaded canister.	C.2.(c)
35	HCSTD50	N	1.3	0.000 to 0.600	50K HC Standard (STD) (in g/mi). (note: HC in this case refers to THC, NMHC, NMOG, OMHCE, or OMNMHCE)	C.5.(a), (c) C.7.(a)
36	HCSTD100	N	1.3	0.000 to 0.860	100K HC Standard (in g/mi). (note: HC in this case refers to THC, NMHC, NMOG, OMHCE, or OMNMHCE)	C.5.(a), (c) C.7.(a)
37	NMOGSTD5	N	1.3	0.000 to 0.600	50K NMOG Standard (in g/mi) for flex-fuel vehicles -- M0 to M85 methanol fueled engines.	C.5.(e) C.7.(c)
38	NMOGSTD1	N	1.3	0.000 to 0.860	100K NMOG Standard (in g/mi) for flexible-fuel vehicles.	C.5.(e) C.7.(c)
39	COSTD50K	N	2.1	0.0 to 7.0	50K CO Standard (in g/mi).	C.7.(a)
40	COSTD100	N	2.1	0.0 to 10.3	100K CO Standard (in g/mi).	C.7.(a)
41	NOXSTD5	N	1.2	0.0 to 2.0	50K NOX Standard (in g/mi).	C.7.(a)
42	NOXSTD1	N	1.2	0.00 to 2.77	100K NOX Standard (in g/mi).	C.7.(a)
43	HCHOSTD5	N	1.3	0.000 to 0.036	50K HCHO Standard (in g/mi).	C.6. C.7.(a)
44	HCHOSTD1	N	1.3	0.000 to 0.052	100K HCHO Standard (in g/mi).	C.6. C.7.(a)
45	PMSTD50K	N	1.2	0.00 to 0.08	50K Particulate Matter Standard (in g/mi). (for diesel only)	C.7.(a)
46	PMSTD100	N	1.2	0.00 to 0.12	100K Particulate Matter Standard (in g/mi). (for diesel only)	C.7.(a)

Sequence	Data Name	Type	Length	Range or Domain	Description	Reference *
1	QTR	C	2	example: for 98 model year vehicles	Engine family production quarter.	C.7

				Q1 = Jan-Mar'97 Q5 = Jan-Mar'98 Q2 = Apr-Jun'97 Q6 = Apr-Jun'98 Q3 = Jul-Sep'97 Q7 = Jul-Sep'98 Q4 = Oct-Dec'97 Q8 = Oct-Dec'98		
2	MFR	C	4	examples: GM, NISS, BENZ See Codes for Manufacturers (p. 10)	Name of the manufacturer.	C.7
3	ENG_FAM	C	12	example: WXMXV3.02EK See EPA designation	12-digit name for engine family (same as EPA).	C.7.(a)
4	VEHCLASS	C	2	PC = Passenger Car T1 = LDT (0 - 3750 lbs.) T2 = LDT (3751 - 5750 lbs.) M1 = MDV (0 - 3750 lbs.) M2 = MDV (3751 - 5750 lbs.) M3 = MDV (5751 - 8500 lbs.)	Types of Light Duty Vehicle	C.7.(a)
5	CODETYPE	C	3	CA = California certified 49S = 49-state certified 50S = 50-state certified	Defines this engine family as certified to meet either CA, 49-state or 50-state standards	C.7.(3), (i)
6	STANDARD	C	5	TIER1 = current new standards TLEV = Transition low emission vehicle LEV = Low emission vehicle ULEV = Ultra low emission vehicle SULEV = Super low emission vehicle ZEV = Zero emission vehicle 965T1 = AB965 Tier1 standards	Standard level this engine family is certified to.	C.7.(a)
7	OPTS	C	1	1 = option (i) load canister on-board 2 = option (ii) load slave canister 3 = option (iii) canister loading factor (CLF) 4 = option (iv) CLF with slave canister D= certified to 100K optional diesel standards	Column for further specifying options and subgroupings within an engine family.	C.7.(e)(3) C.2. (c)(i), (ii), (iii), (iv)
8	DRIVE	C	2	2F = 2 wheel drive, front 2R = 2 wheel drive, rear 4F = 4 wheel drive, Full-time 4P = 4 wheel drive, Part-time	Drive type	C.7.(g)
9	START_UP	D	8	example: July 20, 1993 = 930720 yy/mm/dd	Start date of production for this engine family. Report every quarter after start up.	C.7.(a)
10	BUILDOUT	D	8	example: December 12, 1994 = 941203	Engine family build-out date; date of the end of the manufacturer's	C.7.(a)

				yy/mm/ dd	model production year. Leave blank until actual build-out.	
11	DISTR_49	N	5	0 to 50000	Number of CA certified vehicles produced and delivered for sale outside CA to any of the other 49 states, in the reported quarter. (ie. Section 177 production as specified in MAC 93-02)	MAC 93-02 MAC 87-10
12	CA_DISTR	N	5	0 to 50000	Number of vehicles produced and delivered for sale in CA, in the reported quarter.	C.7(a)
13	PRODSIZE	N	5	0 to 50000	Total number of vehicles produced in the engine family, in the reported quarter.	MAC 87-10 C.7(a)
14	**SAMPSIZE**	**N**	**4**	**0 to 1000**	**Number of vehicles sampled / tested from the engine family, in the reported quarter.**	**C.7(e)(1)**
15	**SAMPLOPT**	**C**	**3**	**2.0 = required 2% or greater sampling 1.0 = 1% sample rate for FFVs and DFVs 50S = 50-state certified eng. family alt. sampling ALT = alternate reduced sampling all 3 months A12 = alt. sampling 1st and 2nd mo. A23 = alt. sampling 2nd and 3rd mo. A13 = alt. sampling 1st and 3rd mo. A1 = alt. sampling 1st mo. only A2 = alt. sampling 2nd mo. only**	**Sampling options**	**C.1, 7.(a)**
16	**TESTFUEL**			**IND = Indolene Clear PH2 = Phase II gasoline M85 = 85% Methanol CNG = Compressed Natural Gas LPG = Liquid Petroleum Gas E85 = 85% Ethanol Diesel: N13 = 13 CCR 2282 N94 = 40 CFR 86.113-94**		**C.5. (e), (f)**
17	**QAFUEL**			**IND = Indolene Clear PH2 = Phase II gasoline M85 = 85% Methanol CNG = Compressed Natural Gas LPG = Liquid Petroleum Gas E85 = 85% Ethanol**		**C.5. (e)**
18	**NMHCMEAN**	**N**	**1.4**	**0.0000 to 9.9999**	**NMHC/OMNMHCE (Methanol/Ethanol) mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
19	**NMHC_SD**	**N**	**1.4**	**0.0000 to 9.9999**	**NMHC/OMNMHCE (Methanol/Ethanol) standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**

20	**NMOGMEAN**	**N**	**1.4**	**0.0000 to 9.9999**	**NMOG mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
21	**NMOG_SD**	**N**	**1.4**	**0.0000 to 9.9999**	**NMOG standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
22	**CO_MEAN**	**N**	**2.2**	**0.00 to 99.99**	**CO mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
23	**CO_SD**	**N**	**2.2**	**0.00 to 99.99**	**CO standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
24	**NOXMEAN**	**N**	**1.3**	**0.000 to 9.999**	**NOX mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
25	**NOX_SD**	**N**	**1.3**	**0.000 to 9.999**	**NOX standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
26	**PM_MEAN**	**N**	**1.3**	**0.000 to 9.999**	**PM mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
27	**PM_SD**	**N**	**1.3**	**0.000 to 9.999**	**PM standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
28		**HCHOMEAN**	**1.4**	**0.0000 to 9.9999**	**HCHO mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
29	**HCHO_SD**	**N**	**1.4**	**0.0000 to 9.9999**	**HCHO standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)**	**C.7(e)(2)**
30	**CO2MEAN**	**N**	**3.1**	**0.0 to 999.9**	**CO2 mean (in g/mi) of this engine family for the stated reporting period (Qtr)**	**C.7(e)(2)**
31	**CO2_SD**	**N**	**3.1**	**0.0 to 999.9**	**CO2 standard deviation of this engine family for the stated reporting period (Qtr)**	**C.7(e)(2)**
32	**NMHCMEAN5**	**N**	**1.4**	**0.0000 to 9.9999**	**50K NMHC/OMNMHCE (Methanol/Ethanol) mean (in g/mi) of this engine family for the stated reporting period (Qtr)**	**C.7(e)(2)**
33	**NMHC_SD5**	**N**	**1.4**	**0.0000 to 9.9999**	**50K NMHC/OMNMHCE (Methanol/Ethanol) standard deviation of this engine family for the stated reporting period (Qtr)**	**C.7(e)(2)**
34	**NMOGMEAN5**	**N**	**1.4**	**0.0000 to 9.9999**	**50K NMOG mean (in g/mi) of this engine family for the stated reporting period (Qtr)**	**C.7(e)(2)**
35	**NMOG_SD5**	**N**	**1.4**	**0.0000 to 9.9999**	**50K NMOG standard deviation of this engine family for the stated reporting period (Qtr)**	**C.7(e)(2)**
36	**CO_MEAN5**	**N**	**2.2**	**0.00 to 99.99**	**50K CO mean (in g/mi) of this**	**C.7(e)(2)**

					engine family for the stated reporting period (Qtr)	
37	CO_SD5	N	2.2	0.00 to 99.99	50K CO standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
38	NOXMEAN5	N	1.3	0.000 to 9.999	50K NOX mean (in g/mi) of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
39	NOX_SD5	N	1.3	0.000 to 9.999	50K NOX standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
40	PM_MEAN5	N	1.3	0.000 to 9.999	50K PM mean (in g/mi) of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
41	PM_SD5	N	1.3	0.000 to 9.999	50K PM standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
42	HCHOMEAN5	N	1.4	0.0000 to 9.9999	50K HCHO mean (in g/mi) of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
43	HCHO_SD5	N	1.4	0.0000 to 9.9999	50K HCHO standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
44	NMHCMEAN1	N	1.4	0.0000 to 9.9999	100K NMHC/OMNMHCE (Methanol/Ethanol) mean (in g/mi) of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
45	NMHC_SD1	N	1.4	0.0000 to 9.9999	100K NMHC/OMNMHCE (Methanol/Ethanol) standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
46	NMOGMEAN1	N	1.4	0.0000 to 9.9999	100K NMOG mean (in g/mi) of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
47	NMOG_SD1	N	1.4	0.0000 to 9.9999	100K NMOG standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
48	CO_MEAN1	N	2.2	0.00 to 99.99	100K CO mean (in g/mi) of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
49	CO_SD1	N	2.2	0.00 to 99.99	100K CO standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
50	NOXMEAN1	N	1.3	0.000 to 9.999	100K NOX mean (in g/mi) of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
51	NOX_SD1	N	1.3	0.000 to 9.999	100K NOX standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
52	PM_MEAN1	N	1.3	0.000 to 9.999	100K PM mean (in g/mi) of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
53	PM_SD1	N	1.3	0.000 to 9.999	100K PM standard deviation of this engine family for the stated reporting period (Qtr)	C.7(e)(2)
54	HCHOMEAN	N	1.4	0.0000 to 9.9999	100K HCHO mean (in g/mi) of this	C.7(e)(2)

	1				**engine family for the stated reporting period (Qtr)**	
55	**HCHO_SD1**	**N**	**1.4**	**0.0000 to 9.9999**	**100K HCHO standard deviation of this engine family for the stated reporting period (Qtr)**	**C.7(e)(2)**

Appendix A
ENGINE FAMILY DATA PER QUARTER FILE

* Unless Otherwise specified, refers to CA Assembly-Line Test Procedures for 1998 and Subsequent Model-Year PCs, LDTs, MDVs, adopted 6/24/96.

Appendix A
ENGINE FAMILY DATA PER QUARTER FILE

Appendix A

INDIVIDUAL DATA PER QUARTER FILE

Sequence	Data Name	Type	Length	Range or Domain	Description	Reference *
1	QTR	C	2	example: for 98 model year vehicles Q1 = Jan-Mar'97 Q5 = Jan-Mar'98 Q2 = Apr-Jun'97 Q6 = Apr-Jun'98 Q3 = Jul-Sep'97 Q7 = Jul-Sep'98 Q4 = Oct-Dec'97 Q8 = Oct-Dec'98	Engine family production quarter.	C.7
2	MFR	C	4	examples: GM, NISS, BENZ See Codes for Manufacturers (p. 10)	Name of the manufacturer.	C.7
3	ENG_FAM	C	12	example: WXMXV3.02EK See EPA designation	12-digit name for engine family (same as EPA).	C.7.(a)
4	VEHCLASS	C	2	PC = Passenger Car T1 = LDT (0 - 3750 lbs.) T2 = LDT (3751 - 5750 lbs.) M1 = MDV (0 - 3750 lbs.) M2 = MDV (3751 - 5750 lbs.) M3 = MDV (5751 - 8500 lbs.)	Types of Light Duty Vehicle	C.7.(a)
5	CODETYPE	C	3	CA = California certified 49S = 49-state certified 50S = 50-state certified	Defines this engine family as certified to meet either CA, 49-state or 50-state standards	C.7.(3), (i)
6	STANDARD	C	5	TIER1 = current new standards TLEV = Transition low emission vehicle LEV = Low emission vehicle ULEV = Ultra low emission vehicle SULEV = Super low emission vehicle ZEV = Zero emission vehicle 965T1 = AB965 Tier1 standards	Standard level this engine family is certified to.	C.7.(a)
7	OPTS	C	1	1 = option (i) load canister on-board 2 = option (ii) load slave canister 3 = option (iii) canister loading factor (CLF) 4 = option (iv) CLF with slave canister D= certified to 100K optional diesel standards	Column for further specifying options and subgroupings within an engine family.	C.7.(e)(3) C.2. ©
8	DRIVE	C	2	2F = 2 wheel drive, front 2R = 2 wheel drive, rear 4F = 4 wheel drive, Full-time 4P = 4 wheel drive, Part-time	Drive type	C.7.(g)
9	DISP	N	1.1	0.0 to 9.9	Engine displacement in liters	C.7.(b)
10	ENG_CODE	C	8	Mfr designated	Mfr's engine code.	C.7.(b)
11	TRANS	C	2	A2 = Automatic 2 speed A3 = Automatic 3 speed A4 = Automatic 4 speed L3 = Lockup automatic 3 speed L4 = Lockup automatic 4 speed M4 = Manual 4 speed M5 = Manual 5 speed	Transmission type	C.7.(b)
12	FUEL_INJ	C	3	TBI = Throttle-body fuel injection MFI = Multiport fuel injection SFI = Sequential multiport fuel injection	Fuel system type	C.7.(b)

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ENGINE FAMILY DATA PER QUARTER FILE

				CPI = Central port fuel injection **CFI = Continuous fuel injection** **DFI = Direct fuel injection**		
13	**ETW**	**N**	**5**	**0 to 99999 lbs.**	**Equivalent Test Weight**	**C.7.(b)**
14	**DPA_STNG**	**N**	**2.2**	**0 to 99.99 hp.**	**Dynamometer power absorption setting.**	**C.7.(b)**
15	**MODEL**	**C**	**14**	**Mfr designated**	**Vehicle model**	

Appendix A

INDIVIDUAL DATA PER QUARTER FILE

Sequence	Data Name	Type	Length	Range or Domain	Description	Reference *
16	LVW	N	5	0 to 99999	Loaded Vehicle Weight	
17	TESTFUEL			IND = Indolene Clear PH2 = Phase II gasoline M85 = 85% Methanol CNG = Compressed Natural Gas LPG = Liquid Petroleum Gas E85 = 85% Ethanol Diesel: N13 = 13 CCR 2282 N94 = 40 CFR 86.113-94		C.5. (e), (f)
18	ODOMETER	N	4	0 to 9999 mi.	Odometer reading (ie miles accumulated on the vehicle) at the time of testing.	C.2.(b)
19	MFR_PLANT	C	10	Text	Location where the vehicle was assembled / built.	
20	BLD_DATE	D	6	yymmdd	Date the vehicle was built.	
21	TEST_LOC	C	10	Text	Location where the vehicle was QA tested.	C.7.(b)
22	TESTDATE	D	6	yymmdd	Date the vehicle was QA tested.	C.7.(b)
23	VIN	C	17	Mfr designated	Vehicle Identification Number; a unique ID # for each vehicle produced.	C.7.(b)
24	NMHC	N	1.4	0.0000 to 9.9999	NMHC emissions (in g/mi) without deterioration factor	C.7.(c)
25	NMOG	N	1.4	0.0000 to 9.9999	NMOG emissions (in g/mi) without deterioration factor	C.7.(c)
26	CO	N	2.2	0.00 to 99.99	CO emissions (in g/mi) without deterioration factor	C.7.(c)
27	NOX	N	1.3	0.000 to 9.999	NOx emissions (in g/mi) without deterioration factor	C.7.(c)
28	PM	N	1.3	0.000 to 9.999	Particulate Matter emissions (in g/mi) without deterioration factor for diesel engines	C.7.(c)
29	HCHO	N	1.4	0.0000 to 9.9999	HCHO emissions (in g/mi) without deterioration factor	C.7.(c)
30	CO2	N	3.1	000.0 to 999.9	CO2 emissions (in g/mi) without deterioration factor	C.7.(c)
31	OBD_RDY	C	1	Y = Yes N = No	Check for OBD system readiness	C.7.(c)

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ENGINE FAMILY DATA PER QUARTER FILE

32	OBD_IND	C	1	1 = OBD light indicator is on 0 = OBD light indicator is off.	Check OBD light indicator	C.7.(c)
33	OBDCODE1	C	5	(refer to SAE pub. J2012)	1st OBD fault code from the OBD system.	C.7.(c)
34	OBDCODE2	C	5	(refer to SAE pub. J2012)	2nd OBD fault code from the OBD system.	C.7.(c)
35	OBDCODE3	C	5	(refer to SAE pub. J2012)	3rd OBD fault code from the OBD system.	C.7.(c)
36	OBDCODE4	C	5	(refer to SAE pub. J2012)	4th OBD fault code from the OBD system.	C.7.(c)
37	OBDCODE5	C	5	(refer to SAE pub. J2012)	5th OBD fault code from the OBD system.	C.7.(c)

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INDIVIDUAL DATA PER QUARTER FILE

Sequence	Data Name	Type	Length	Range or Domain	Description	Reference *

38	TST_STAT	C	2	if tested:
				(blank) = valid first test
				IN = Invalid test
				AB = Aborted test
				RT = Valid retest
				(for a vehicle failing the initial test)
				if not tested:
				NT = Not Testable
				NR = Not reasonably operative
				NS = Not safe to test
				DT = Would be damaged by testing
					Test status
					
					Report the reason(s) for aborting, invalidating, retesting or not testing in the NOTES field of this record. Repairs should be reported in the REPAIRS field of the record containing the emissions resulting from those repairs.
						C.2.(d),(e),(g).
						C.7.(d),(f)

39	REPAIRS	C	40	Mfr. designated	Any repairs/adjustments/corrective measures performed on the vehicle prior to testing of the vehicle. These repairs should correspond to the emissions results of this record. List specific components replaced or adjusted.	C.2.(e), C.7.(d)
40	NOTES	C	50	Text	Any comments: Reason(s) for Aborting, Retesting, Invalidating a test. Reason(s) a vehicle was not tested. etc.	C.2.(d),(e)(g) C.7.(d),(f)
41	NMHC_50K	N	1.4	0.0000 to 9.9999	NMHC emissions (in g/mi) with 50K deterioration factor applied	C.7.(c)
42	NMOG_50K	N	1.4	0.0000 to 9.9999	NMOG emissions (in g/mi) with 50K deterioration factor applied	C.7.(c)
43	CO_50K	N	2.2	00.00 to 99.99	CO emissions (in g/mi) with 50K deterioration factor applied	C.7.(c)
44	NOX_50K	N	1.3	0.000 to 9.999	NOx emissions (in g/mi) with 50K deterioration factor applied	C.7.(c)
45	PM_50K	N	1.3	0.000 to 9.999	Particulate Matter emissions (in g/mi) with	C.7.(c)

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ENGINE FAMILY DATA PER QUARTER FILE

					50K deterioration factor applied for diesel engines	
46	HCHO_50K	N	1.4	0.0000 to 9.9999	HCHO emissions (in g/mi) with 50K deterioration factor applied	C.7.(c)
47	NMHC100K	N	1.4	0.0000 to 9.9999	NMHC emissions (in g/mi) with 100K deterioration factor applied	C.7.(c)
48	NMOG100K	N	1.4	0.0000 to 9.9999	NMOG emissions (in g/mi) with 100K deterioration factor applied	C.7.(c)
49	CO_100K	N	2.2	0.00 to 99.99	CO emissions (in g/mi) with 100K deterioration factor applied	C.7.(c)
50	NOX_100K	N	1.3	0.000 to 9.999	NOx emissions (in g/mi) with 100K deterioration factor applied	C.7.(c)
51	PM_100K	N	1.3	0.000 to 9.999	Particulate Matter emissions (in g/mi) with 100K deterioration factor applied for diesel engines	C.7.(c)
52	HCHO100K	N	1.4	0.0000 to 9.9999	HCHO emissions (in g/mi) with 100K deterioration factor applied	C.7.(c)

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ENGINE FAMILY DATA PER QUARTER FILE

Appendix A

CODE FOR MANUFACTURER

Manufacturer Names	MFR Code
ALFA ROMEO	ALFA
ASTON MARTIN	ASMA
AUDI	AUDI
BMW	BMW
CHRYSLER	**CHRY**
DAIHATSU	DAIH
FERRARI	FERR
FIAT	FIAT
FORD	FORD
FUJI	FUJI
GENERAL MOTORS	GM
GRUMMAN	GRUM
HONDA MOTORS	HOND
HYUNDAI	HYND
ISUZU MOTORS	ISUZ
JAGUAR MOTORS	JAG
KIA MOTORS CORPORATION	KIA
LAMBORGHINI	LAMB
LOTUS CARS	LOTU
MASERATI	MASE
MAZDA MOTOR CORP	MAZD
MERCEDES-BENZ	BENZ
MITSUBISHI MOTORS CORPORATION	MITS
MITSUBISHI MOTOR MFG OF AMERICA	MMMA
MITSUBISHI MOTORS AUSTRALIA LTD	MMAL
NISSAN	NISS
PEUGEOT	PEUG
PORSCHE	PORS
LAND ROVER	ROVR
ROLLS ROYCE	RR

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ENGINE FAMILY DATA PER QUARTER FILE

SAAB	SAAB
SUZUKI	SUZU
TOYOTA	TOTA
NUMMI	NUMM
VOLKSWAGEN	VOLK
VOLVO	VOLVO

ENGINE FAMILY INFORMATION

Information to be Included in Hardcopy

Record Source: Engine Family Information File - Appendix A		
Sequence Number	Data Name	Description
2	MFR	Name of the manufacturer.
3	ENG_FAM	12-digit name for engine family (same as EPA).
4	VEHCLASS	Types of Light Duty Vehicle
5	CODETYPE	Identifies whether this engine family is a CA, 49-state or 50-state engine family.
6	STANDARD	Standard level this engine family is certified to.
8	DRIVE	Drive type
9	CERTFUEL	Fuel type this engine family is certified to use, including flexable fuel and dual or bi-fuel confriguration.
11	MILEAGE	Miles accumulated on the average for this engine family
12	HCDF_50	50K HC Deterioration factor (DF). (note: HC in this case refers to THC, NMHC, NMOG, OMHCE, or OMNMHCE)
13	HCDF_100	100K HC Deterioration factor. (note: HC in this case refers to THC, NMHC, NMOG, OMHCE, or OMNMHCE)
14	NMOG5FFV	50K NMOG Deterioration factor for flex-fuel vehicles -- M0 to M85 methanol fueled engines.
15	NMOG1FFV	100K NMOG deterioration factor for flexible-fuel vehicles.
16	NMOGRAF5	NMOG reactivity adjustment factor (RAF) at 50K.
17	NMOGRAF1	NMOG reactivity adjustment factor (RAF) at 100K -- only this value need to be reported for engine family specific RAF.
18	OZON_DF5	50K Ozone deterioration factor.
19	OZON_DF1	100K Ozone deterioration factor -- only this value need to be reported by MFR.
20	NMOG_RAT	NMOG to NMHC ratio multiplied with NMHC exhaust emissions of QA vehicle to determine the equivalent NMOG value.
21	CODF_50K	50K CO Deterioration factor.
22	CODF_100	100K CO Deterioration factor.
23	NOXDF50K	50K NOX Deterioration factor.
24	NOXDF100	100K NOX Deterioration factor.

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ENGINE FAMILY DATA PER QUARTER FILE

25	HCHODF50	50K HCHO Deterioration factor.
26	HCHODF10	100K HCHO Deterioration factor.
27	HCHO_RAT	HCHO to NMHC ratio multiplied with NMHC exhaust emissions of QA vehicle to determine the equivalent NMOG value.
28	PARTDF50	50K Particulate Matter deterioration factor. (for diesel only)
29	PARTDF10	100K Particulate Matter deterioration factor. (for diesel only)
30	MASDF50	Mass deterioration factor at 50K for ozone forming potential --96 + MY Tier 1 vehicles.
31	MASDF100	Mass deterioration factor at 100K ---Tier 1 vehicles in 96 + MY
32	HC_D	Average of the hydrocarbon (THC, NMHC, NMOG) emissions difference between a loaded and unloaded canister; Additive factor applied to hydrocarbon test results to account for unloaded canister.
Sequence Number	Data Name	Description
33	OMHCE_D	Average of the OMHCE emissions difference between a loaded and unloaded canister; Additive factor applied to OMHCE test results to account for unloaded canister.
34	CO_D	Average of the CO emissions difference between a loaded and unloaded canister; Additive factor applied to CO test results to account for unloaded canister.
35	HCSTD50	50K HC Standard (STD) (in g/mi). (note: HC in this case refers to THC, NMHC, NMOG, OMHCE, or OMNMHCE)
36	HCSTD100	100K HC Standard (in g/mi). (note: HC in this case refers to THC, NMHC, NMOG, OMHCE, or OMNMHCE)
37	NMOGSTD5	50K NMOG Standard (in g/mi) for flex-fuel vehicles -- M0 to M85 methanol fueled engines.
38	NMOGSTD1	100K NMOG Standard (in g/mi) for flexible-fuel vehicles.
39	COSTD50K	50K CO Standard (in g/mi).
40	COSTD100	100K CO Standard (in g/mi).
41	NOXSTD5	50K NOX Standard (in g/mi).
42	NOXSTD1	100K NOX Standard (in g/mi).
43	HCHOSTD5	50K HCHO Standard (in g/mi).
44	HCHOSTD1	100K HCHO Standard (in g/mi).
45	PMSTD50K	50K Particulate Matter Standard (in g/mi). (for diesel only)
46	PMSTD100	100K Particulate Matter Standard (in g/mi). (for diesel only)

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Appendix A
ENGINE FAMILY DATA PER QUARTER FILE

ENGINE FAMILY DATA PER QUARTER

Information to be Included in Hardcopy

Record Source: Engine Family Data Per Quarter File - Appendix A		
Sequence Number	Data Name	Description
1	QTR	Engine family production quarter.
2	MFR	Name of the manufacturer.
3	ENG_FAM	12-digit name for engine family (same as EPA).
4	VEHCLASS	Types of Light Duty Vehicle
5	CODETYPE	Defines this engine family as certified to meet either CA, 49-state or 50-state standards
6	STANDARD	Standard level this engine family is certified to.
7	OPTS	Column for further specifying options and subgroupings within an engine family.
8	DRIVE	Drive type
12	CA_DISTR	Number of vehicles produced and delivered for sale in CA, in the reported quarter.
13	PRODSIZE	Total number of vehicles produced in the engine family, in the reported quarter.
14	SAMPSIZE	Number of vehicles sampled / tested from the engine family, in the reported quarter.
15	SAMPLOPT	Sampling options
16	TESTFUEL	Fuel type used to evaluating engine family.
18	NMHCMEAN	NMHC/OMNMHCE (Methanol/Ethanol) mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)
19	NMHC_SD	NMHC/OMNMHCE (Methanol/Ethanol) standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)
20	NMOGMEAN	NMOG mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)
21	NMOG_SD	NMOG standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)
22	CO_MEAN	CO mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)
23	CO_SD	CO standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)
24	NOXMEAN	NOX mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)
25	NOX_SD	NOX standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)
26	PM_MEAN	PM mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)
27	PM_SD	PM standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)
28	HCHOMEAN	HCHO mean (in g/mi) of this engine family for the stated reporting period (Qtr) (no DFs applied)
29	HCHO_SD	HCHO standard deviation of this engine family for the stated reporting period (Qtr) (no DFs applied)

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Appendix A
ENGINE FAMILY DATA PER QUARTER FILE

32	NMHCMEAN5	50K NMHC/OMNMHCE (Methanol/Ethanol) mean (in g/mi) of this engine family for the stated reporting period (Qtr)
33	NMHC_SD5	50K NMHC/OMNMHCE (Methanol/Ethanol) standard deviation of this engine family for the stated reporting period (Qtr)
Sequence Number	Data Name	Description
34	NMOGMEAN5	50K NMOG mean (in g/mi) of this engine family for the stated reporting period (Qtr)
35	NMOG_SD5	50K NMOG standard deviation of this engine family for the stated reporting period (Qtr)
36	CO_MEAN5	50K CO mean (in g/mi) of this engine family for the stated reporting period (Qtr)
37	CO_SD5	50K CO standard deviation of this engine family for the stated reporting period (Qtr)
38	NOXMEAN5	50K NOX mean (in g/mi) of this engine family for the stated reporting period (Qtr)
39	NOX_SD5	50K NOX standard deviation of this engine family for the stated reporting period (Qtr)
40	PM_MEAN5	50K PM mean (in g/mi) of this engine family for the stated reporting period (Qtr)
41	PM_SD5	50K PM standard deviation of this engine family for the stated reporting period (Qtr)
42	HCHOMEAN5	50K HCHO mean (in g/mi) of this engine family for the stated reporting period (Qtr)
43	HCHO_SD5	50K HCHO standard deviation of this engine family for the stated reporting period (Qtr)
44	NMHCMEAN1	100K NMHC/OMNMHCE (Methanol/Ethanol) mean (in g/mi) of this engine family for the stated reporting period (Qtr)
45	NMHC_SD1	100K NMHC/OMNMHCE (Methanol/Ethanol) standard deviation of this engine family for the stated reporting period (Qtr)
46	NMOGMEAN1	100K NMOG mean (in g/mi) of this engine family for the stated reporting period (Qtr)
47	NMOG_SD1	100K NMOG standard deviation of this engine family for the stated reporting period (Qtr)
48	CO_MEAN1	100K CO mean (in g/mi) of this engine family for the stated reporting period (Qtr)
49	CO_SD1	100K CO standard deviation of this engine family for the stated reporting period (Qtr)
50	NOXMEAN1	100K NOX mean (in g/mi) of this engine family for the stated reporting period (Qtr)
51	NOX_SD1	100K NOX standard deviation of this engine family for the stated reporting period (Qtr)
52	PM_MEAN1	100K PM mean (in g/mi) of this engine family for the stated reporting period (Qtr)
53	PM_SD1	100K PM standard deviation of this engine family for the stated reporting period (Qtr)
54	HCHOMEAN1	100K HCHO mean (in g/mi) of this engine family for the stated reporting period (Qtr)

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55	HCHO_SD1	100K HCHO standard deviation of this engine family for the stated reporting period (Qtr)

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ENGINE FAMILY DATA PER QUARTER FILE

INDIVIDUAL DATA PER QUARTER FILE

Information to be Included in Hardcopy

Record Source: Engine Family Individual File - Appendix A		
Sequence Number	Data Name	Description
1	QTR	Engine family production quarter.
9	DISP	Engine displacement in liters
10	ENG_CODE	Mfr's engine code.
11	TRANS	Transmission type
13	ETW	Equivalent Test Weight
15	MODEL	Vehicle model
17	TESTFUEL	
18	ODOMETER	Odometer reading (ie miles accumulated on the vehicle) at the time of testing.
20	BLD_DATE	Date the vehicle was built.
22	TESTDATE	Date the vehicle was QA tested.
23	VIN	Vehicle Identification Number; a unique ID # for each vehicle produced.
24	NMHC	NMHC emissions (in g/mi) without deterioration factor
25	NMOG	NMOG emissions (in g/mi) without deterioration factor
26	CO	CO emissions (in g/mi) without deterioration factor
27	NOX	NOx emissions (in g/mi) without deterioration factor
28	PM	Particulate Matter emissions (in g/mi) without deterioration factor for diesel engines
29	HCHO	HCHO emissions (in g/mi) without deterioration factor
32	OBD_IND	Check OBD light indicator
38	TST_STAT	Test status
39	REPAIRS	Any repairs/adjustments/corrective measures performed on the vehicle prior to testing of the vehicle. These repairs should correspond to the emissions results of this record. List specific components replaced or adjusted.
40	NOTES	Reasons for Aborting, Retesting, Invalidating a test. Reasons a vehicle was not tested. etc.
41	NMHC_50K	NMHC emissions (in g/mi) with 50K deterioration factor applied
42	NMOG_50K	NMOG emissions (in g/mi) with 50K deterioration factor applied
43	CO_50K	CO emissions (in g/mi) with 50K deterioration factor applied
44	NOX_50K	NOx emissions (in g/mi) with 50K deterioration factor applied
45	PM_50K	Particulate Matter emissions (in g/mi) with 50K deterioration factor applied for diesel engines
46	HCHO_50K	HCHO emissions (in g/mi) with 50K deterioration factor applied
47	NMHC100K	NMHC emissions (in g/mi) with 100K deterioration factor applied
48	NMOG100K	NMOG emissions (in g/mi) with 100K deterioration factor applied
49	CO_100K	CO emissions (in g/mi) with 100K deterioration factor applied

* Unless Otherwise specified, refers to CA Assembly-Line Test Procedures for 1998 and Subsequent Model-Year PCs, LDTs, MDVs, adopted 6/24/96.

50	NOX_100K	NOx emissions (in g/mi) with 100K deterioration factor applied
51	PM_100K	Particulate Matter emissions (in g/mi) with 100K deterioration factor applied for diesel engines
52	HCHO100K	HCHO emissions (in g/mi) with 100K deterioration factor applied

* Unless Otherwise specified, refers to CA Assembly-Line Test Procedures for 1998 and Subsequent Model-Year PCs, LDTs, MDVs, adopted 6/24/96.

Appendix C

Hardcopy Format

1998 CALIFORNIA QUALITY AUDIT ENGINE FAMILY QUARTERLY SUMMARY

ENGINE FAMILY						MMHC #2 MEAN	MMHC SIGMA	NMOG #1 MEAN	NMOG SIGMA	CO MEAN	CO SIGMA	NOX MEAN	NOX SIGMA	HCHO MEAN	HCHO SIGMA	PM MEAN	PM SIGMA
#3	CODE #5	CA PROD #12															
	CLASS #4	TOTAL #13		RAW		#18	#19	#20	#21	#22	#23	#24	#25	#28	#29	#26	#27
	STD #6	SAMPLE #14		50K		#32	#33	#34	#35	#36	#37	#38	#39	#42	#43	#40	#41
	DRIVE #8	SAMPOPT #15		100K		#44	#45	#46	#47	#48	#49	#50	#51	#54	#55	#52	#53
	OPTS #7	FUEL #16															
#3	CODE #5	CA PROD #12															
	CLASS #4	TOTAL #13		RAW		#18	#19	#20	#21	#22	#23	#24	#25	#28	#29	#26	#27
	STD #6	SAMPLE #14		50K		#32	#33	#34	#35	#36	#37	#38	#39	#42	#43	#40	#41
	DRIVE #8	SAMPOPT #15		100K		#44	#45	#46	#47	#48	#49	#50	#51	#54	#55	#52	#53
	OPTS #7	FUEL #16															
#3	CODE #5	CA PROD #12															
	CLASS #4	TOTAL #13		RAW		#18	#19	#20	#21	#22	#23	#24	#25	#28	#29	#26	#27
	STD #6	SAMPLE #14		50K		#32	#33	#34	#35	#36	#37	#38	#39	#42	#43	#40	#41
	DRIVE #8	SAMPOPT #15		100K		#44	#45	#46	#47	#48	#49	#50	#51	#54	#55	#52	#53
	OPTS #7	FUEL #16															

NUMBERS INDICATE THE CORRESPONDING FIELD FROM THE ENGINE FAMILY DATA PER QUARTER FILE FOUND IN APPENDIX A